ABSTRACT

Devices are provided for separating and focusing analytes, comprising a separation chamber and electrodes separated from the separation chamber by a membrane. The electrodes are operative to generate an electric field in the separation chamber. Molecular sieve in the separation chamber is operative to shift the location at which a stationary focused band of the analyte forms under a given set of focusing process parameters. Methods are provided for separating and focusing charged analytes, comprising introducing a first fluid comprising at least one charged analyte into the separation chamber of a device as just described, applying an electric field gradient to the separation chamber to focus the charged analyte at a location in the separation chamber. Methods are provided for separating and focusing un-charged (including inadequately charged) analytes, comprising introducing a fluid comprising at least the uncharged analyte and lipids, micelles and/or vesicles into the separation chamber of a device as just described, and applying an electric field gradient to the separation chamber to focus the analyte (in association with the lipids, micelles and/or vesicles) at a location in the separation chamber.